FIG. 1

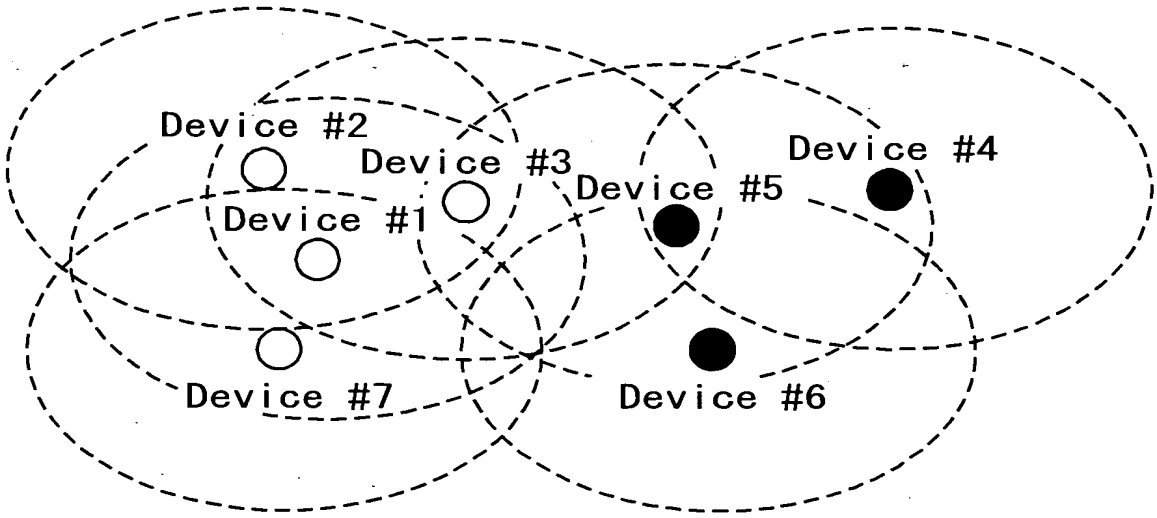

Device #2
Device #3
Device #1
Device #5
Device #4
Device #7
Device #6

FIG. 2

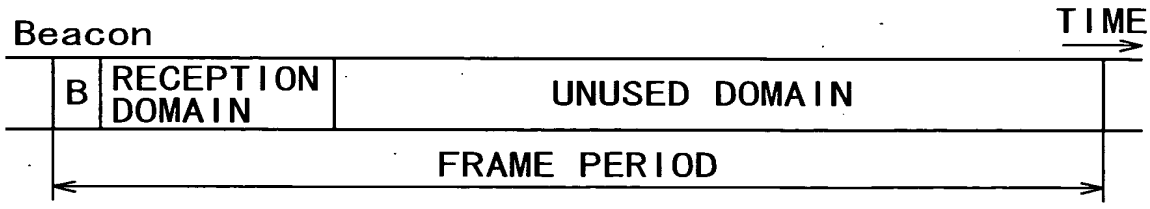

Beacon
TIME
B
RECEPTION DOMAIN
UNUSED DOMAIN
FRAME PERIOD

FIG. 3

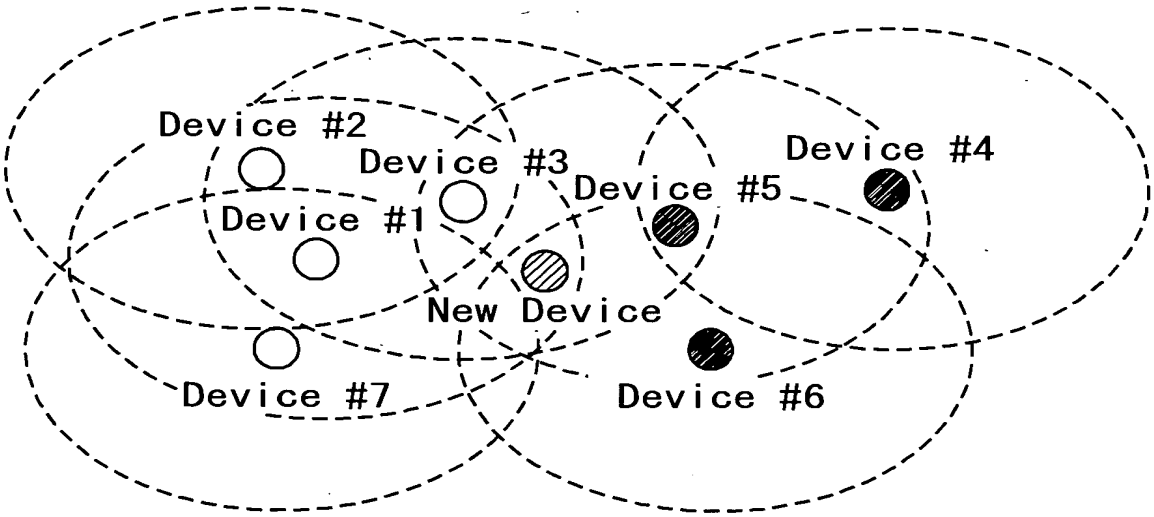

Device #2
Device #3
Device #5
Device #4
Device #1
New Device
Device #7
Device #6

FIG. 4

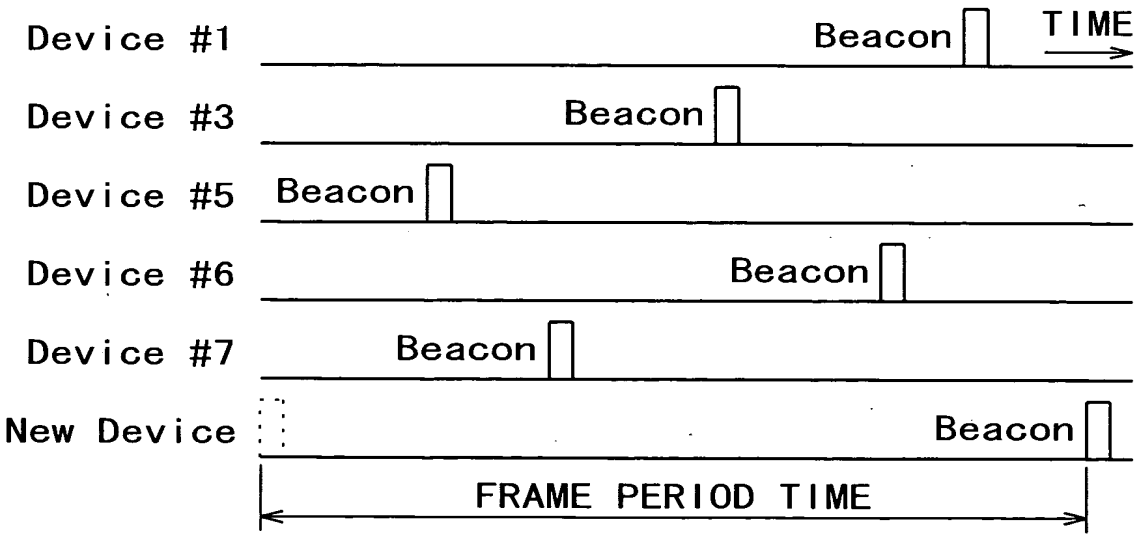
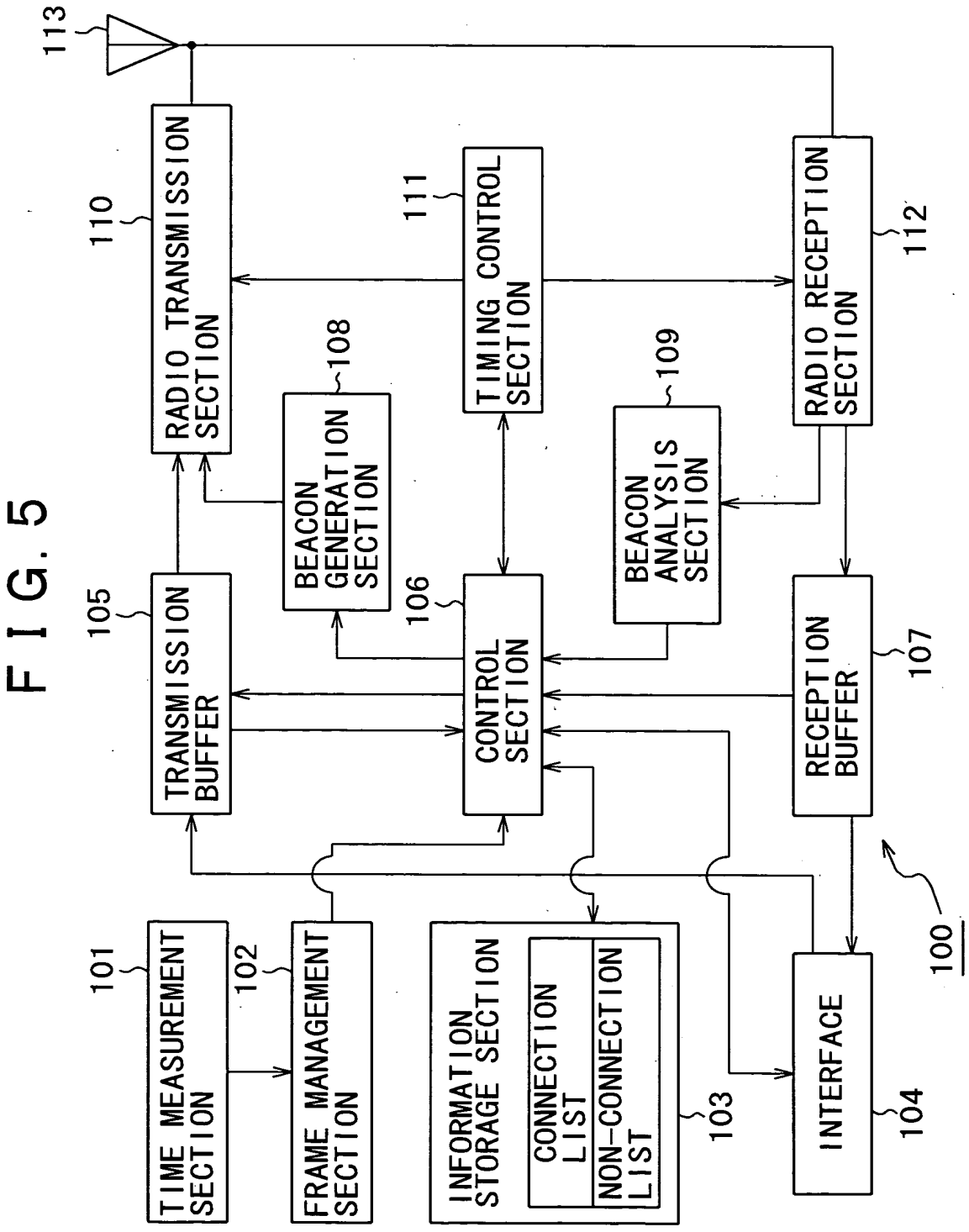

Device #1
Beacon
TIME
Device #3
Beacon
Device #5
Beacon
Device #6
Beacon
Device #7
Beacon
New Device
Beacon
FRAME PERIOD TIME

FIG. 5


113
110
RADIO TRANSMISSION SECTION
111
TIMING CONTROL SECTION
112
RADIO RECEPTION SECTION
108
BEACON GENERATION SECTION
109
BEACON ANALYSIS SECTION
105
TRANSMISSION BUFFER
106
CONTROL SECTION
107
RECEPTION BUFFER
101
TIME MEASUREMENT SECTION
102
FRAME MANAGEMENT SECTION
INFORMATION STORAGE SECTION
CONNECTION LIST
NON-CONNECTION LIST
103
INTERFACE
104
100

F I G. 6

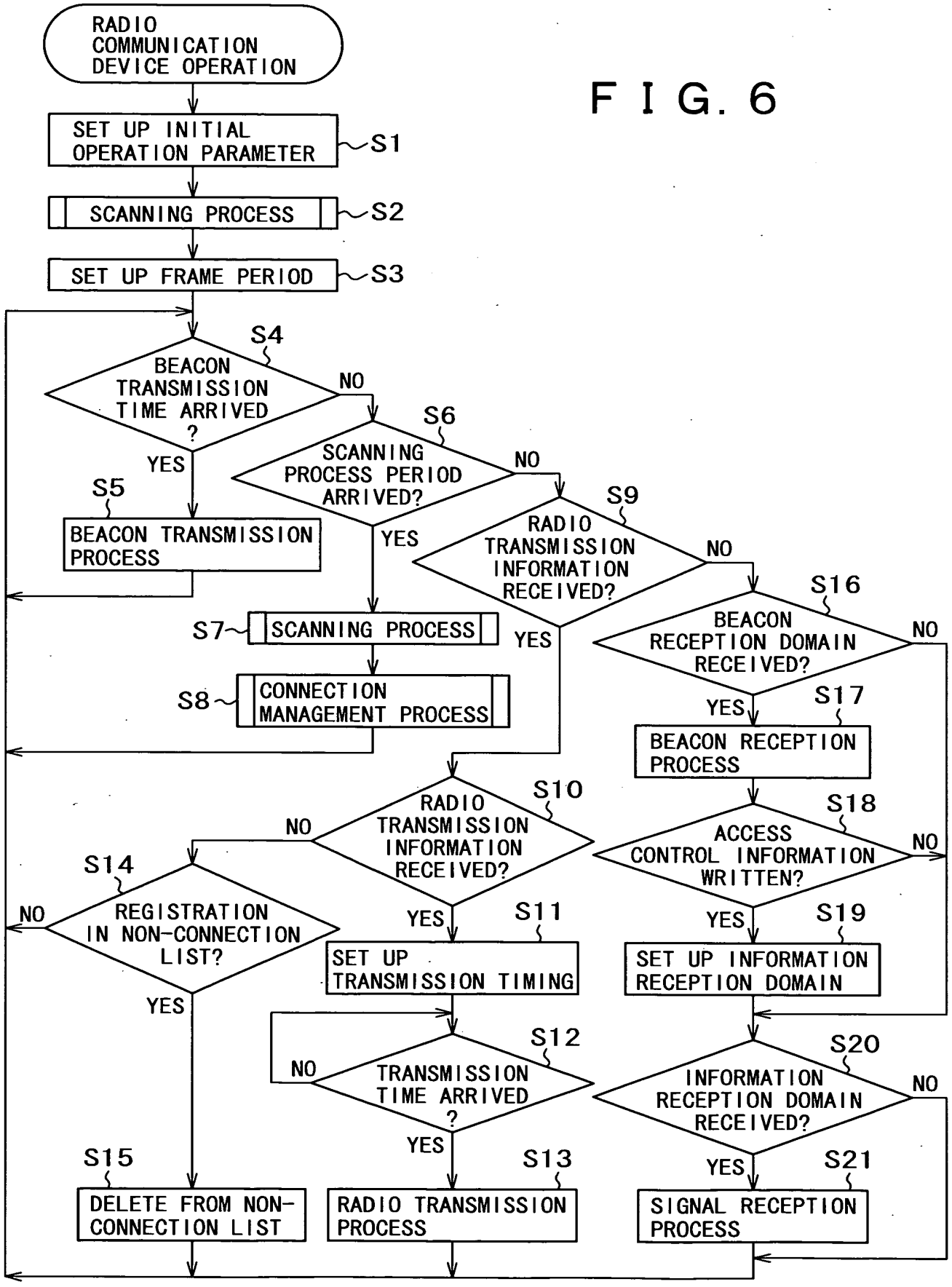

RADIO COMMUNICATION DEVICE OPERATION
SET UP INITIAL OPERATION PARAMETER
S1
SCANNING PROCESS
S2
SET UP FRAME PERIOD
S3
S4
BEACON TRANSMISSION TIME ARRIVED ?
NO
YES
S5
BEACON TRANSMISSION PROCESS
S6
SCANNING PROCESS PERIOD ARRIVED?
NO
YES
S7
SCANNING PROCESS
S8
CONNECTION MANAGEMENT PROCESS
S9
RADIO TRANSMISSION INFORMATION RECEIVED?
NO
YES
S10
RADIO TRANSMISSION INFORMATION RECEIVED?
NO
YES
S11
SET UP TRANSMISSION TIMING
S12
TRANSMISSION TIME ARRIVED ?
NO
YES
S13
RADIO TRANSMISSION PROCESS
S14
REGISTRATION IN NON-CONNECTION LIST?
NO
YES
S15
DELETE FROM NON-CONNECTION LIST
S16
BEACON RECEPTION DOMAIN RECEIVED?
NO
YES
S17
BEACON RECEPTION PROCESS
S18
ACCESS CONTROL INFORMATION WRITTEN?
NO
YES
S19
SET UP INFORMATION RECEPTION DOMAIN
S20
INFORMATION RECEPTION DOMAIN RECEIVED?
NO
YES
S21
SIGNAL RECEPTION PROCESS

FIG. 7

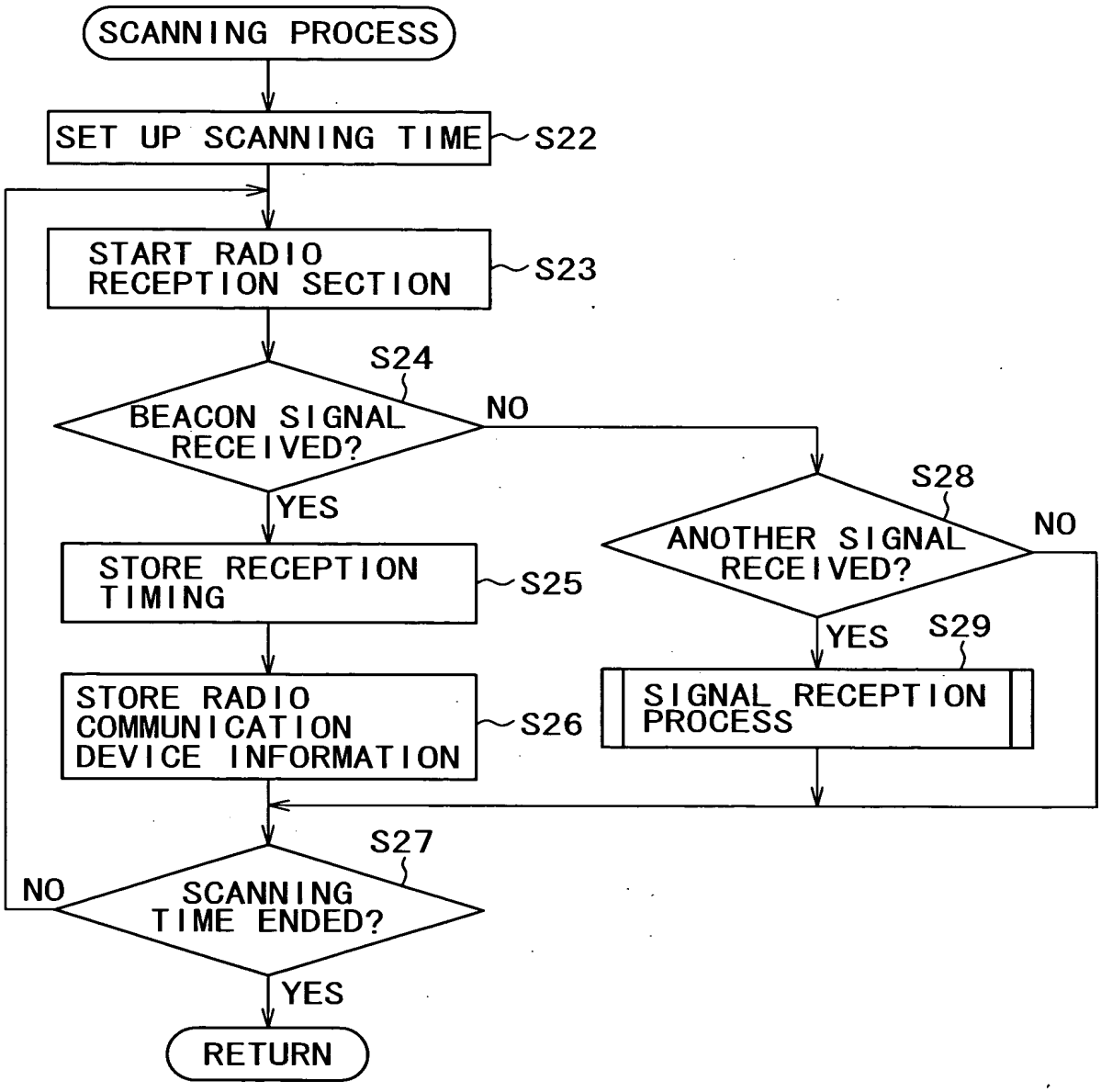

SCANNING PROCESS
SET UP SCANNING TIME
S22
START RADIO RECEPTION SECTION
S23
S24
BEACON SIGNAL RECEIVED?
NO
YES
STORE RECEPTION TIMING
S25
STORE RADIO COMMUNICATION DEVICE INFORMATION
S26
S27
SCANNING TIME ENDED?
NO
YES
RETURN
S28
ANOTHER SIGNAL RECEIVED?
NO
YES
S29
SIGNAL RECEPTION PROCESS

FIG. 8

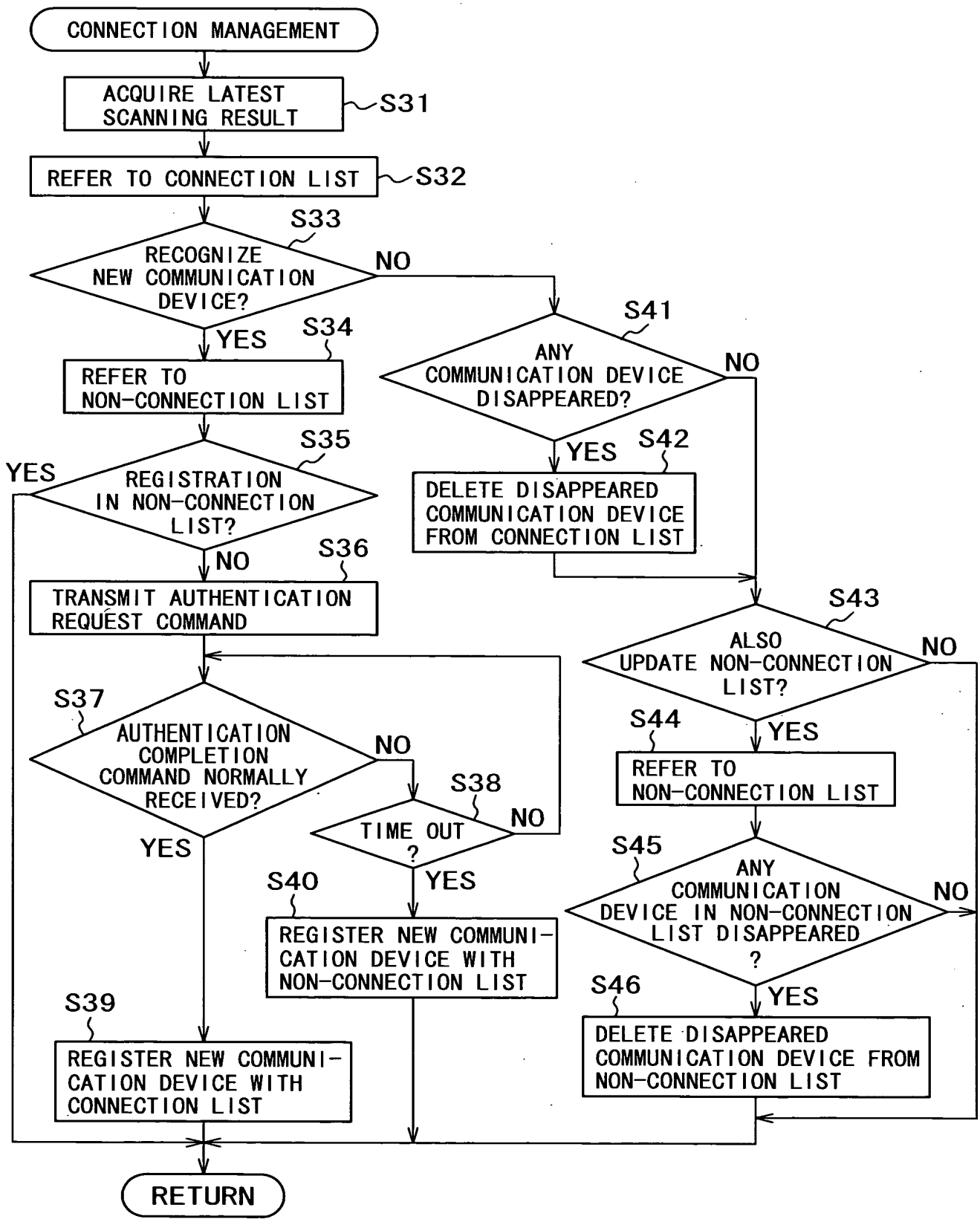

CONNECTION MANAGEMENT
ACQUIRE LATEST SCANNING RESULT
S31
REFER TO CONNECTION LIST
S32
S33
RECOGNIZE NEW COMMUNICATION DEVICE?
NO
YES
S34
REFER TO NON-CONNECTION LIST
S35
REGISTRATION IN NON-CONNECTION LIST?
YES
NO
S36
TRANSMIT AUTHENTICATION REQUEST COMMAND
S37
AUTHENTICATION COMPLETION COMMAND NORMALLY RECEIVED?
NO
YES
S38
TIME OUT ?
NO
YES
S40
REGISTER NEW COMMUNICATION DEVICE WITH NON-CONNECTION LIST
S39
REGISTER NEW COMMUNICATION DEVICE WITH CONNECTION LIST
S41
ANY COMMUNICATION DEVICE DISAPPEARED?
NO
YES
S42
DELETE DISAPPEARED COMMUNICATION DEVICE FROM CONNECTION LIST
S43
ALSO UPDATE NON-CONNECTION LIST?
NO
YES
S44
REFER TO NON-CONNECTION LIST
S45
ANY COMMUNICATION DEVICE IN NON-CONNECTION LIST DISAPPEARED ?
NO
YES
S46
DELETE DISAPPEARED COMMUNICATION DEVICE FROM NON-CONNECTION LIST
RETURN

FIG. 9

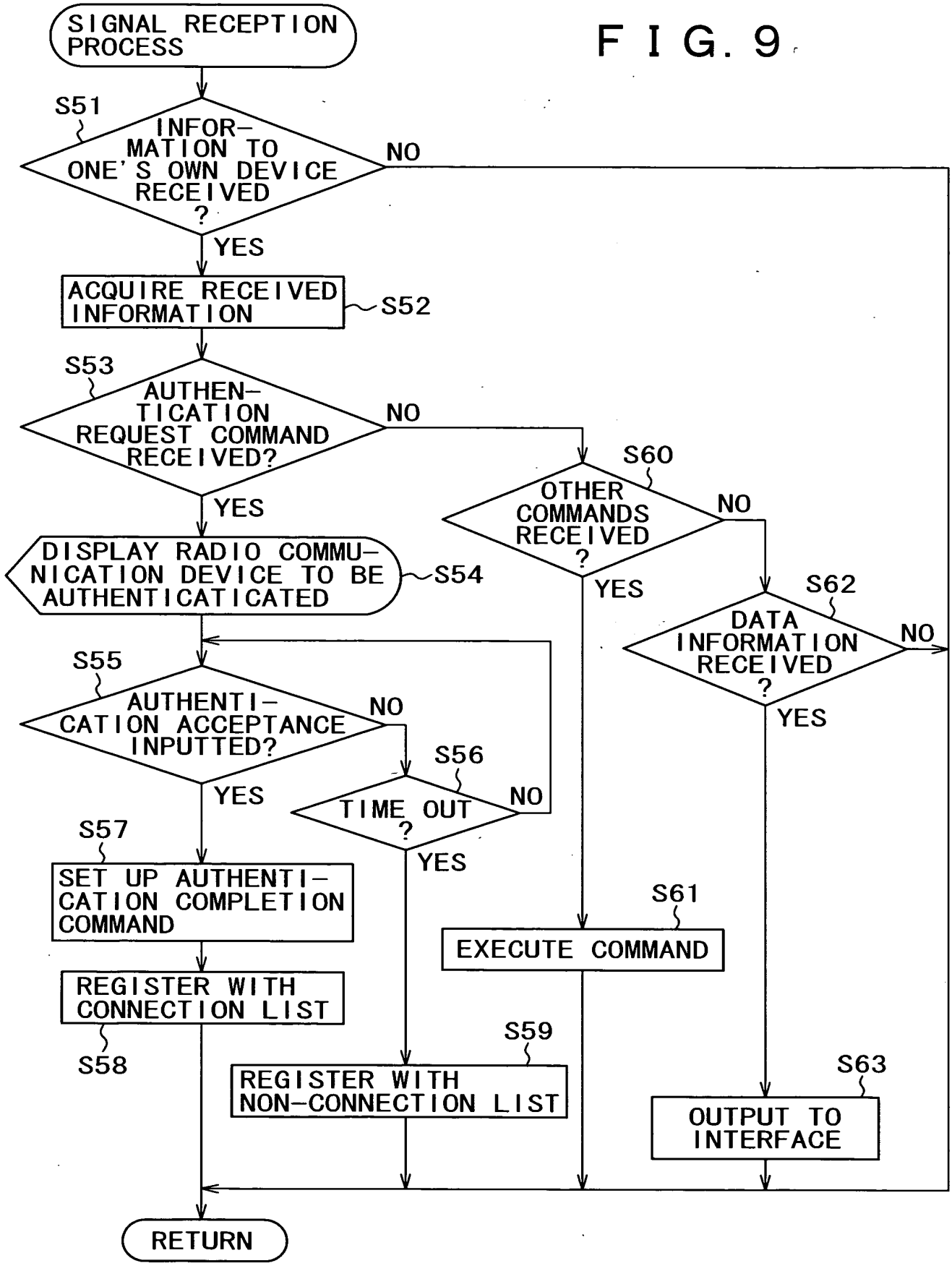

SIGNAL RECEPTION PROCESS
S51
INFOR-MATION TO ONE'S OWN DEVICE RECEIVED ?
NO
YES
ACQUIRE RECEIVED INFORMATION
S52
S53
AUTHEN-TICATION REQUEST COMMAND RECEIVED?
NO
YES
DISPLAY RADIO COMMU-NICATION DEVICE TO BE AUTHENTICATICATED
S54
S55
AUTHENTI-CATION ACCEPTANCE INPUTTED?
NO
YES
S56
TIME OUT ?
NO
YES
S57
SET UP AUTHENTI-CATION COMPLETION COMMAND
REGISTER WITH CONNECTION LIST
S58
S59
REGISTER WITH NON-CONNECTION LIST
S60
OTHER COMMANDS RECEIVED ?
NO
YES
S61
EXECUTE COMMAND
S62
DATA INFORMATION RECEIVED ?
NO
YES
S63
OUTPUT TO INTERFACE
RETURN

FIG. 10

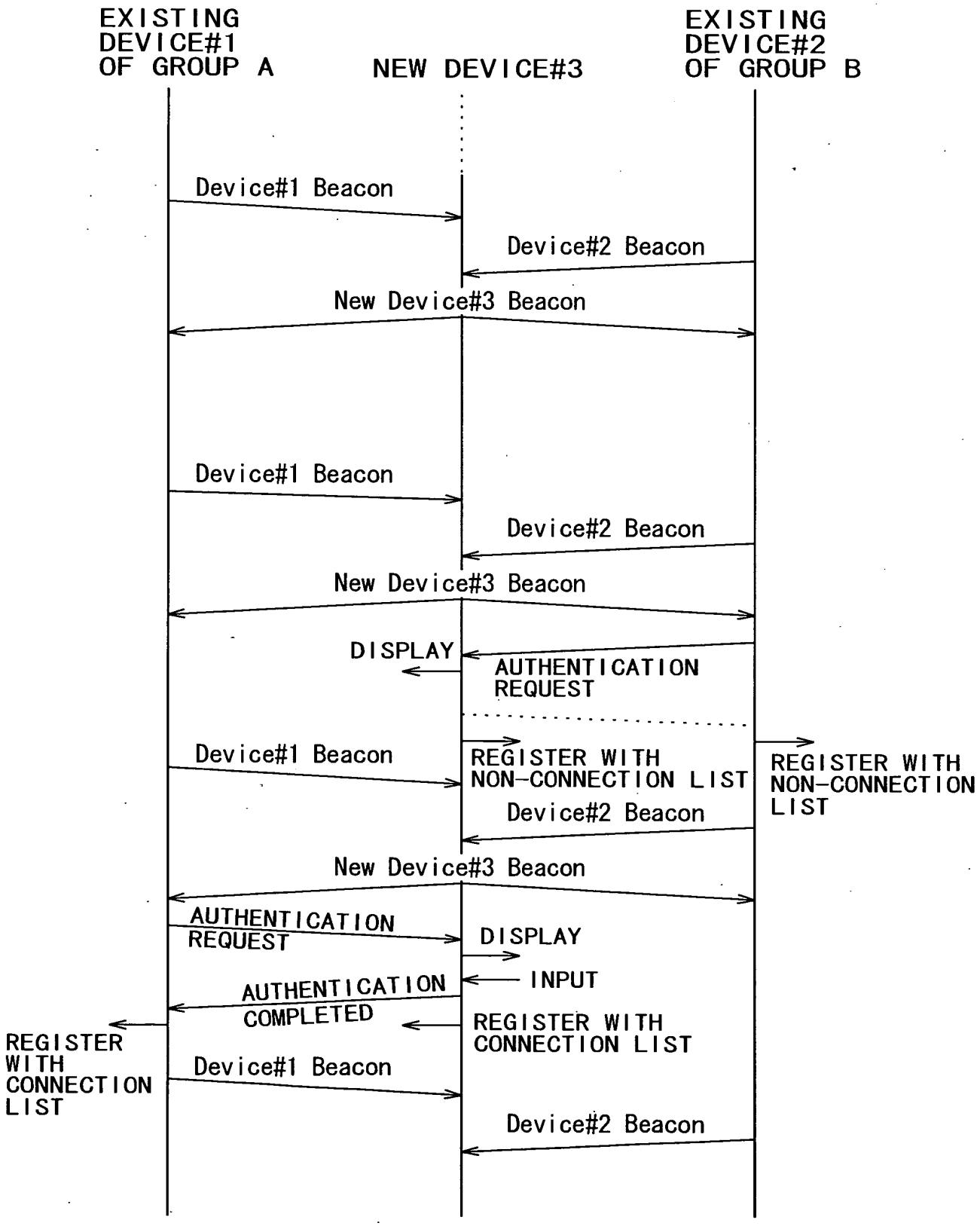
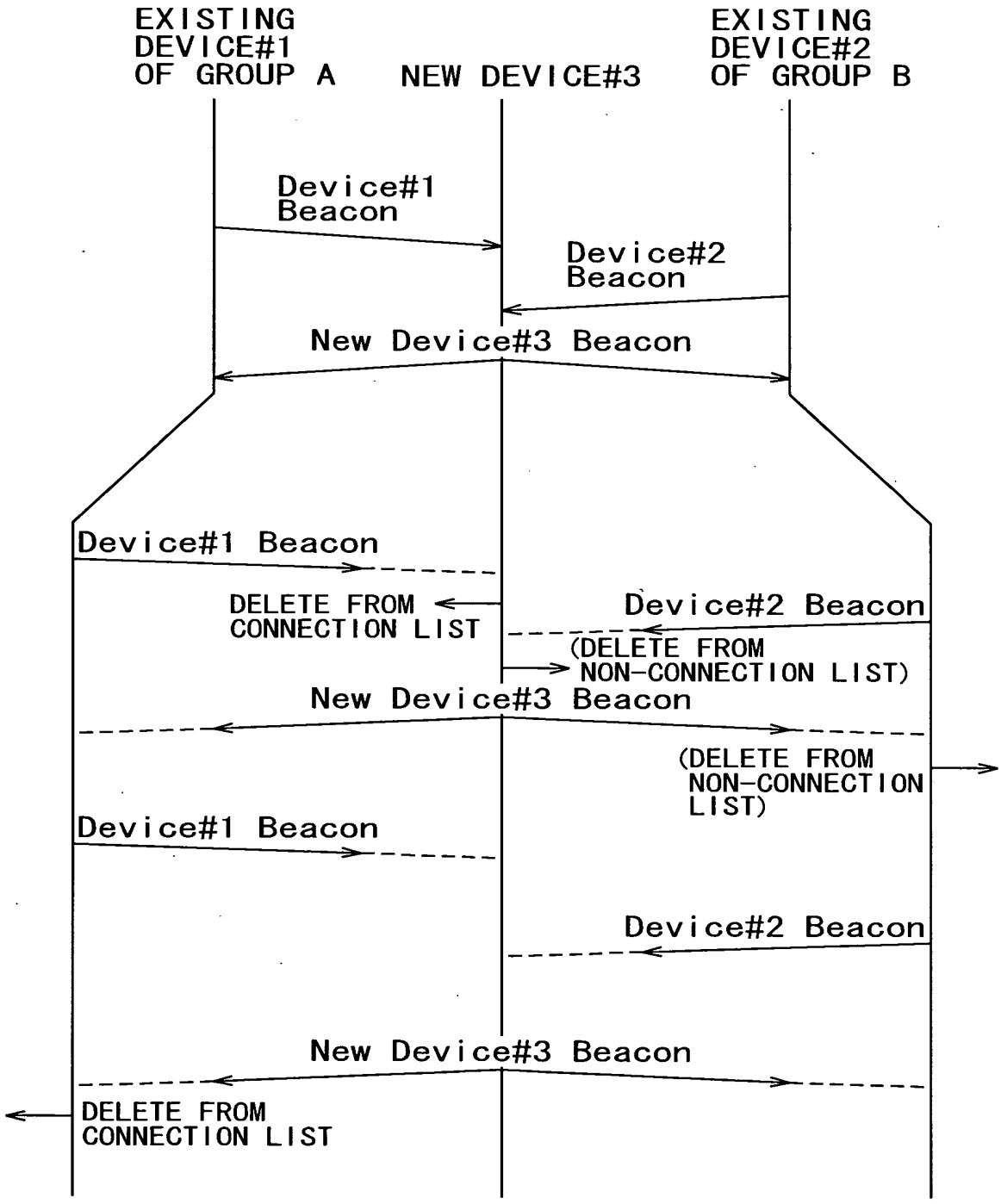

EXISTING DEVICE#1 OF GROUP A
NEW DEVICE#3
EXISTING DEVICE#2 OF GROUP B
Device#1 Beacon
Device#2 Beacon
New Device#3 Beacon
Device#1 Beacon
Device#2 Beacon
New Device#3 Beacon
DISPLAY
AUTHENTICATION REQUEST
Device#1 Beacon
REGISTER WITH NON-CONNECTION LIST
REGISTER WITH NON-CONNECTION LIST
Device#2 Beacon
New Device#3 Beacon
AUTHENTICATION REQUEST
DISPLAY
INPUT
AUTHENTICATION COMPLETED
REGISTER WITH CONNECTION LIST
REGISTER WITH CONNECTION LIST
Device#1 Beacon
Device#2 Beacon

FIG. 11


EXISTING DEVICE#1 OF GROUP A
NEW DEVICE#3
EXISTING DEVICE#2 OF GROUP B
Device#1 Beacon
Device#2 Beacon
New Device#3 Beacon
Device#1 Beacon
DELETE FROM CONNECTION LIST
Device#2 Beacon
(DELETE FROM NON-CONNECTION LIST)
New Device#3 Beacon
(DELETE FROM NON-CONNECTION LIST)
Device#1 Beacon
Device#2 Beacon
New Device#3 Beacon
DELETE FROM CONNECTION LIST